J6703(C)

MASSAGE APPLICATOR FOR COSMETIC COMPOSITIONS

FIELD OF THE INVENTION

The present invention relates to an improved apparatus and method for dispensing cosmetic compositions, and more particularly, to an apparatus and method for dispensing an antiperspirant or deodorant composition using a massage applicator.

BACKGROUND OF THE INVENTION

Many cosmetic compositions are known to be suitable for application to human skin. Antiperspirant or deodorant compositions can comprise a number of forms, such as a liquid or cream, gel or micronized powder, or spray and solid stick. Such compositions are dispensed in a variety of packages that are commercially available or otherwise known in the antiperspirant art. These products are designed to provide effective perspiration and odor control while also being cosmetically acceptable during and after application onto the underarm area or other areas of the skin.

Antiperspirant deodorant compositions are disclosed in U.S. Patent No. 5,534,245 and International Patent Application WO 98/51185. International Patent Application WO 00/64302 discloses a package suitable for dispensing a flowable cosmetic composition.

Many of these antiperspirant and deodorant products, however, are cosmetically unacceptable to a large number of users because the products are perceived as being sticky and wet, taking a long time to dry after application to skin, and leave undesirable visible deposits on the skin.

Other methods of reducing sweat and odor have been tried. GB 1 240 275 discloses use of current flow via the body of a user to achieve bacteria kill and deodorizing effects. CN 1 256 116 discloses a physiotherapeutic instrument to deliver ozone wind massage. These are not practically appealing to a consumer.

Moreover, it is difficult to achieve more than a certain degree of sweat reduction. Without being bound by theory, the limit may be due to the number of sweat glands or pores that are open at any given time when an antiperspirant or deodorant is applied. The closed pores, deemed to be dormant, open at other times and become activated to functionally release perspiration or sweat. On the other hand, it is the open pores that are suitable for receiving delivery of antiperspirant or deodorant products.

An object of the present invention is to provide a specially adapted kit for delivering a cosmetic composition, preferably a flowable antiperspirant composition, which provides enhanced efficacy of the composition.

Another object of the present invention is to provide a method for delivering a cosmetic composition to human skin for enhanced efficacy of the composition.

Other objects of the present invention will become apparent to those skilled in the art by reference to the specification.

As used herein, the term “comprising” includes made up of, composed of, including, consisting and/or consisting essentially of. Except in the operating and comparative examples, or where otherwise explicitly indicated, all numbers in this description indicating amounts or ratios of material or conditions of reaction, physical properties of materials and/or use are to be understood as modified by the word “about”.

As used herein, the term “massage” includes manipulation of tissues (as by rubbing, kneading, vibrating, or tapping) with the hand or an instrument for therapeutic, experiential, sensorial, or cosmetic purposes.

SUMMARY OF THE INVENTION

The present invention is based on the concept that, if application of antiperspirant and deodorant compositions is combined with massage, significantly improved functionality is achieved. Therefore, a specially adapted kit apparatus for delivering a cosmetic composition for topical application to human skin and a method of using it is provided, including:

a) a massage applicator apparatus comprising a power source, which may include manual generation of vibrationary action, driving an oscillating mechanism connected to an interface medium;

the massage applicator apparatus further including means for delivering vibration to the interface medium;

the interface medium optionally being provided with a cover seatable thereon; and

b) a cosmetic composition.

The power source may include an *on* and *off* control device and a switch. The applicator surface may have proturberances thrusting out from its outer surface. The massage applicator apparatus may further include a composition refill system and/or a composition delivery system.

BRIEF DESCRIPTION OF THE DRAWINGS

The following figure is intended for purposes of illustration and example.

FIG. 1 is a perspective view of an embodiment of the present invention;

FIG. 2 is a cross-sectional view of the embodiment of FIG. 1 taken along line II-II.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a specially adapted kit apparatus and method for delivering a cosmetic composition to human skin, preferably a flowable antiperspirant or deodorant composition, which provide enhanced antiperspirant and deodorant effects. Kit **10** includes a cosmetic composition **12** and a massage applicator apparatus **14**. Cosmetic composition **12** may either be provided within and as a component of massage applicator apparatus **14** or separately applied from a

base unit either directly to human skin or to massage applicator apparatus **14**. Cosmetic composition **12** may be any cosmetic composition suitable for application to human skin, including antiperspirant compositions, deodorant compositions, compositions for the cleansing and care of human skin, skin lightening compositions, and combinations thereof. Preferably, cosmetic composition **12** is a cream or soft solid antiperspirant or deodorant composition. The cream and soft solid antiperspirant compositions exhibit a synergistic effect when applied to the human axilla by means of massage applicator apparatus **14**.

Massage applicator **14** can be in any form, operated manually, mechanically, such as clockwork mechanisms, or driven by a power source, such as electrical or battery source, and other mechanisms for the generation of vibration, such as electromagnetic solenoids and magneto restrictive materials. Preferably, massage applicator **14** is a hand held apparatus including a power source **20** driving an oscillating mechanism **30** connected to a vibrating head or interface medium **40.** Massage applicator **14** can further optionally include a composition refill system **50**, a composition delivery system **60** for delivering composition **12** to interface medium **40**, and means for delivering vibration **70** (also known as a flexible skirt)**,** for actuating vibration of interface medium **40**. Cover **80** is optionally provided, seatable over interface medium **40** to enclose and protect massage applicator apparatus **14**.

Referring to the accompanying drawings, FIG. 1 is a perspective view of a preferred embodiment of kit **10** of the present invention and FIG. 2 is a cross-sectional view of the embodiment of FIG. 1 taken along line II-II. In the preferred embodiment, kit **10** includes cosmetic composition **12** and massage applicator **14**. Massage

applicator **14** includes power source **20** driving an oscillating mechanism **30** connected to interface medium **40**.

Power source **20** may include permanently or detachably installed disposable or re-chargeable batteries. Power source **20** may further include an on and off control device **22** (not shown), including a switch **24**. Control device **22** may control power source **20** to operate for a set time or continuously. Optionally, control device **22** may simultaneously control power to oscillating mechanism **30** and to composition delivery system **60**.

Oscillating mechanism **30** may be powered or manual, and may include an electrical mechanism, a motor, a solenoid, clockwork, and the like. Oscillating mechanism **30** provides vibration to interface medium **40** at set or variable frequencies and amplitude. Oscillating mechanism may further include offset weights **34**.

Interface medium **40** may be formed integrally with oscillating mechanism **30** or may be formed as a separate member and attached to oscillating mechanism **30**. Interface medium **40** includes an applicator outer surface **42** extending in a direction away from oscillating mechanism **30** and an inner surface **44** closest to oscillating mechanism **30**. Outer surface **42** may be smooth or textured, and curved or flat. A textured outer surface **42** may have proturberances **46** thrusting out therefrom, which may be rounded masses or knobs (not shown). Interface medium **40** optionally has at least one exit orifice **48** therein.

In another aspect, composition **12** may be a solid stick antiperspirant or deodorant composition **13** (not shown), with solid stick composition **13** itself serving as

interface medium and applicator surface. Thereby, the vibration or resonance may be transferred directly to the axilla via stick **13**.

Further with reference to FIGS. 1 and 2, massage applicator **14** includes a composition refill system **50** in fluid communication with a composition delivery system **60** for delivering composition **12** to interface medium **40**, and means for delivering vibration **70,** for actuation of vibration of interface medium **40**. Composition refill system **50** may include a refillable or disposable container, sachet, or combinations thereof. For example, when the contents of the container or sachet are exhausted, it may be replaced by another container or sachet. In the alternative, the container may be refilled from an external source of composition **12**.

In the preferred embodiment, composition delivery system **60** may be provided with a pump system or a platform lift system. Composition delivery system **60** may include an actuating device for dispensing a dose of composition **12** to interface medium **40**. Delivery system **60** may be automatically or manually driven.

Cover **80** may be provided, to be seated over interface medium **40** to enclose any exit orifices **48** when massage applicator apparatus **14** is not in use. Cover **80** includes outer surface **82** and inner surface **84** which takes an appropriate form to cooperate with applicator outer surface **42**.

During operation of kit **10**, with reference to FIG. 1, composition **12** is delivered to human skin according to the present invention by means of massage applicator apparatus **14** by turning on switch **24** to activate power source **20**. Control device **22**

may control power source **20** to operate for a set time or continuously. Power is delivered to oscillating mechanism **30** activating means for delivering vibration **70** (also known as a flexible skirt) to interface medium **40**, thereby causing interface medium **40** to vibrate. In the meantime, composition delivery system **60** delivers composition **22** from product refill system **50** to exit orifices **48** in the vibrating interface medium **40**. Massage applicator apparatus **14** is brought in contact with a location on human skin at applicator outer surface **42**, thereby simultaneously exerting stress and strain or delivering a massage and composition **12** through exit orifices **48** to the point of contact on the skin. Thereby, composition **12** is spread and massaged into the human skin. Massage as used in the context of the present invention is meant to include manipulation of human tissues, as by rubbing, kneading, or tapping, be it manually or with the aid of an apparatus. Although kit **10** is useful for any type of cosmetic composition at any skin position, it is advantageously used for application of antiperspirant or deodorant compositions to human axillary regions.

<u>Compositions</u>

The present invention kit **10** is particularly suitable for flowable antiperspirant and deodorant compositions, preferably in cream form. Examples of suitable antiperspirant and deodorant compositions are as follows.

An antiperspirant composition according to the invention includes an antiperspirant active. The proportion of antiperspirant active present in the composition according to the invention may be about 1% to about 35% by weight of the composition, preferably at least about 5% by weight and more

preferably about 15% to about 30% by weight of the base composition. A base composition herein excludes any propellant that may be employed.

Examples of suitable actives include aluminium salts, zirconium salts, aluminium and/or zirconium complexes, for example aluminium halides, aluminium hydroxy halides, zirconyl oxyhalides, zirconyl hydroxyhalides, and mixtures thereof. Specific examples include activated aluminium chlorohydrate, aluminium chlorohydrate, aluminium pentachlorohydrate and aluminium zirconium chlorohydrate. Useful zirconium salts include zirconium hydroxy-chloride and zirconium oxychloride. Other generally used actives will be known to those skilled in the art. Preferred actives include ZAG (Zirconium Aluminium Glycine), AAZG (Activated Aluminium Zirconium Glycine), and AACH (Activated Aluminium Chorohydrate). The antiperspirant active can be present in particulate form whereupon it is normally suspended in a suitable carrier fluid, which usually is water-immiscible, and which can be structured or thickened. Alternatively the active can be dissolved in a polar solution, such as for example in aqueous solution or in a polar low weight polyhydric alcohol such as propylene glycol, advantageously about 30% to about 60% by weight solution.

The deodorant compositions according to the present invention normally comprise about 0.01 to about 90% of a deodorant active. The deodorant active used in the cosmetics of the invention can be any deodorant active known in the art such as alcohols, in particular aliphatic monohydric alcohols such as ethanol or propanol, antimicrobial actives such as polyhexamethylene biguanides, e.g., those available under the trade name Cosmocil™ or chlorinated aromatics, e.g., triclosan available under the trade name Irgasan™,

non-microbiocidal deodorant actives such as triethylcitrate, bactericides and bacteriostats. Yet other deodorant actives can include zinc salts such as zinc ricinoleate.

The carrier material for the compositions according to the invention can comprise one or more of volatile carrier fluids, one or more of non-volatile emollients, and it can be structured or thickened by one or a combination of thickener and/or structurant materials if required. The carrier material, including, where relevant, carrier materials providing additional properties such as emolliency, can often comprise up to about 99 wt%, in many instances about 5 to 90 wt% and particularly about 10 to about 70 wt% of the composition, or of the base composition, if mixed subsequently with a propellant. Where the composition comprises both hydrophilic and hydrophobic phases, the weight ratio of the two phases is often in the range of about 10:1 to about 1:10.

The antiperspirant or deodorant composition can consist of a mixture of particulate solids or a suspension of solids in a liquid medium, which can be thickened to reduce the rate of segregation or structured to produce a cream (soft solid) or even solid. Alternatively, the composition can be a mixture of liquid constituents, including a solution of an active in a carrier, such a composition often adopting the form of an oil-in-water or water-in-oil emulsion, which may be thickened or gelled.

The carrier material, which may be a fluid or a mixture of fluids, is often selected according to the physical form of the cosmetic composition, e.g. volatile low viscosity silicones, low molecular weight hydrocarbons, alcohols

and water, and can be selected by those skilled in the art to provide appropriate physical and sensory properties for the product. It will be understood that certain fluid alcohols such as in particular ethanol can constitute both a carrier and a deodorant active simultaneously, though advantageously formulations containing such a material also contain an additional deodorant and/or antiperspirant active.

Volatile silicones are usually selected from cyclic polysiloxanes containing from 3 to 8 dialkylsilicone groups, especially dimethylsilicone groups and particularly 4 or 5 dimethylsilicone groups. Other useful volatile silicones can comprise linear polysiloxanes, preferably containing 4 or 5 alkylsiloxane groups, including terminal groups. Low molecular weight liquid hydrocarbons can comprise paraffin oils. Suitable alcohols can comprise monohydric alcohols, such as C3 to C10 aliphatic alcohols, dihydric alcohols such as glycol or propylene glycol or polyhydric alcohols such as glycerol or sorbitol. Carrier materials can provide additional desirable properties, such as polyhydric alcohols for example glycerol can act as a moisturising agent and volatile cyclomethicones can act as emollients.

The non-volatile emollient, if used in the composition, may consist of a single emollient compound or a mixture of emollients. Such emollients often have a solubility parameter of below 10 and many of from 5.5 to 9. They can typically include saturated fatty acids and fatty alcohol esters, ethers containing aliphatic and a polyalkylene group, hydrocarbons, water insoluble ethers, mineral oils and polyorganosiloxanes, and mixtures thereof.

Non-volatile silicones are often polyalkylsiloxanes, polyalkylarylsiloxanes or polyethersiloxanes having a viscosity of above about 10 mPa.s, such as up to about $5x10^6$ mPa.s at 25°C, including polymethylphenylsiloxanes or dimethylpolyoxyalkylene ether copolymers.

Emollient aliphatic esters, often containing about 12 to about 25 carbons, and preferably one substituent containing a chain of at least about 12 carbons. Examples include cetyl palmitate, butyl myristate, glyceryl stearate and propylene glycol monolaurate. The composition can comprise a liquid aliphatic ether which can provide emolliency, such as ethers derived from polyalkylene glycols and a low weight (e.g., up to about C6) alcohol, such as polypropylene glycol (10-15) butyl ether. The total amount of emollient materials within the composition is often within the range of about 1 to about 70 wt%.

The thickening or structurant agent, when required, is selected according to the product form of the cosmetic composition. The thickening or structuring agent can be organic (monomeric or polymeric) or inorganic and is usually chosen depending on the physical nature of the liquid phase to be thickened or structured, such as whether it is hydrophobic or hydrophilic. The amount is normally selected in order to attain the desired viscosity of the liquid or cream or desired resistance to penetration of a solid in accordance with the present invention.

Optionally, but preferably, soft solid or cream formulations herein usually have a hardness of at least about 0.003 N/mm^2 at 25°C. Hardness, especially of soft solids, can be measured by a conventional sphere indentation

technique, using a Stable Micro systems TA.XT2I ™ Texture Analyser. In some formulations in the form of soft solids herein, the so measured hardness is up to about 0.05 N/mm^2 at 25°C and particularly up to about 0.02 N/mm^2 at 25°C. In other and harder formulations in stick form, their hardness is greater than about 0.05 N/mm^2 at 25°C and particularly greater than about 0.1 N/mm^2 at 25°C.

The thickener or structurant can be any of a number of materials, including, for example, waxy structurants for a formulation containing a water-immiscible phase including hydrogenated vegetable oil, hydrogenated castor oil, fatty acids, such as 12-hydroxystearic acid (12-HSA), or ester or amide derivatives of such acids, beeswax, paraffin wax, microcrystalline waxes, silicone wax, and fatty alcohols, such as stearyl alcohol. The structurant can also be a fibre-forming gellant, of which 12-HSA is an example. Other examples include N-acyl amino acid amides and esters, including particularly GP-1 (N-Lauroyl-L-glutamic acid di-n-butylamide), lanosterol, combinations of a sterol and a sterol ester, such as especially β-sitosterol and χ-oryzanol, a polyesterified cellobiose, especially with a C8 to C10 aliphatic acid, threitol esters of and selected secondary amides of di or tri basic carboxylic acids, (e.g., 2-dodecyl-N,N'-dibutylsuccinimide) by themselves or in combination.

Polymeric materials for thickening include polymers such as polyamides, hydroxypropylcellulose, and natural or synthetic gums, such as polyglycerides including agar, agarose, pectin, or guars or mixtures or combinations thereof. One class of materials worthy of attention for thickening a water-immiscible

phase includes derivatives of hydrolyzed starch or other polysaccharides, including in particular esterified dextrins, such as dextrin palmitate. A further class of polymers that is particularly directed to structuring an oil phase containing a silicone oil comprises polysiloxane elastomers. Suspending agents such as silicas or clays such as bentonite, montmorillonite or hectorite, including those available under the trademark Bentone can also be employed to thicken liquid compositions according to the invention. The composition can be thickened with non-polymeric organic gellants, including selected dibenzylidene alditols (e.g., dibenzylidene sorbitol).

The amount of structurant or thickening agent that can be employed in the invention compositions will depend upon the viscosity of a fluid formulation or extent of hardness of a solid formulation that the producer wishes to attain. The amount to be employed will, in practice, also vary depending on the chemical nature of the structurant or thickening agent. In many instances, the amount of structurant or thickening agent will be selected in the range of about 0.1 to about 25 wt%, and particularly about 1 to about 15 wt%.

Other ingredients contemplated within the personal deodorant or antiperspirants art can also be included in the compositions according to the invention, depending on the nature and form of the finished product. These include, for example, surfactants/wash-off agents, fillers, fragrances, antioxidants, preservatives and colouring agents. Such ingredients and their amounts of use are usually selected according to the physical and chemical form of the cosmetic composition.

Surfactants can comprise optionally up to about 15%, more commonly up to about 5% by weight of the total product, and are particularly useful in formulating emulsion antiperspirant or deodorant compositions, for example for use as pump formulations. Non-ionic surfactants are particularly preferred. It is often convenient to select a mixture of surfactants, such as one having a comparatively high hydrophilic-lipophilic balance (HLB) value, e.g., 8 to 18, and one having a comparatively low HLB value, e.g., 2 to 8, which can be introduced in suitable relative proportions to attain an average HLB value of about 6 to 12.

Many suitable nonionic surfactants are selected from nonionic esters, ethers or amine oxides having an appropriate HLB value. Many preferred ionic surfactants comprise a polyoxyalkylene moiety, especially a polyoxyethylene moiety, e.g., 2 to 80, especially 5 to 60 oxyethylene units, or possibly with a polyoxypropylene content, to provide hydrophilicity. Other moieties providing hydrophilicity include polyhydric alcohols such as sorbitol or glycerol. The hydrophobic moiety is commonly derived from aliphatic alcohols or acids or amines containing about 8 to 50 carbons and particularly 10 to 30 carbons. Examples of suitable nonionic surfactants include ceteareth-10 to -25, ceteth-10 to -25, steareth-10 to -25, and PEG-15 to -25 stearate or PEG-8 distearate. Other suitable examples include C10-C20 fatty acid mono, di or tri-glycerides. Further examples include C18-C22 fatty alcohol ethers of polyethylene oxides.

Examples of surfactants which typically have a low HLB value of from 2 to 8 often comprise mono or possibly di fatty acid esters of polyhydric alcohols

such as glycerol, sorbitol, erythritol or trimethylolpropane, including cetyl, stearyl arachidyl and behenyl derivatives.

Fillers can comprise up to about 20%, more commonly up to about 10% of the base composition and can act as supports for liquid ingredients. Suitable fillers include aluminium stearate, aluminium tri-stearate, calcium stearate, talc or finely divided polyethylene, an example of which is ACUMIST B18. The latter can also enhance skin feel properties.

Fragrances, when present, typically comprise up to about 4% of the total product and often from 0.1 to 1.5%.

Colouring agents, antioxidants such as ascorbic acid and tocopherol, and preservatives such as C1 to C3 alkyl parabens can be added as desired.

Other optional ingredients are other cosmetic adjuncts conventionally employed or contemplated for employment in antiperspirant or deodorant products.

EXAMPLE 1

The following table lists examples of cream and soft solid antiperspirant and/or deodorant compositions suitable for use with the massage apparatus of the present invention. These examples are by way of illustration only and are not meant to be limiting in any way.

TABLE I

Creams and soft solids	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	10.1	10.11	10.12	10.13
Ingredients													
Silicone wax		2.5				3							
N-lauroyl-glutamic acid di-*n*-butylamide				1									
Cetearyl Dimethicone /vinyl dimethoicone crosspolymer and Cyclopentasiloxane													65.05
Syncrowax ERLC (13)			2.5		5							3.75	
Synchrowax HGL-C					1.25								
Castor wax			7.5					4				1.25	
Triacontenyl vinyl pyrrolidone copolymer	5												
Stearyl alcohol								6					
Paraffin wax	5	7.5											
Candelilla wax									7				
C24/28 alkyl dimethicone wax									3.5				
Silica			1			1.5	1.5						0.2
Talc					1.75		6	5					
Hydrohobic Clay Bentone 38							3		0.5				
Anhydrous aluminium silicate							6						
Microthene powder							6						
Propylene Carbonate							1.5						
Cyclomethicone		64.5			61.5	63.5	38.3	59	46	50.8	-		
Tetraphenyl tetramethylsiloxane				53									
C12-15 Alkyl benzoate	64.5		63.5			10				12.7	63.5	64.5	4
Dextrin palmitate				5						10	10	5	
Octyldodecanol				15									
Isopropyl Myristate													
Neopentyl Glycol Diheptanoate													5
PPG14 Butyl ether								4.5					
Dimethicone 10 cst					5		10						
Dimethicone 350 cst									25				
PEG8 distearate													2
Stearyl dimethicone													0.75
POE 100 stearyl ether							2						
POE 100 stearate								1					
PPG1-PEG9-lauryl glycol ether													2
AACH	25	25.5				22				-		25.5	
Milled AACH			25.5	25.5							26		
ACH									18	-			
AZAG 7167					25		25.7	20		26.5			22.5
Fragrance	0.5			0.5	0.5			0.5			0.5		0.5

Clinical Studies

Clinical studies have shown increased efficacy in sweat reduction, quicker drying and less stickiness using kit **10** including massage applicator apparatus **14** for delivering antiperspirant/deodorant composition **12** to the human axilla. Although not wishing to be bound by theory, one hypothesis is that the apparatus and method for applying antiperspirant or deodorant compositions opens up more or additional, dormant, skin pores, which may not be otherwise open at the time an antiperspirant and/or deodorant composition **12** would otherwise be applied. In theory, only about one third of the sweat glands in a given area are open at any one time, while two thirds are shut. The massage technique of the present invention makes more sweat glands available for accepting delivery of a cosmetic antiperspirant or deodorant composition, thereby achieving higher sweat reduction. In combination, massage applicator apparatus **14** and composition **12**, constituting kit **10** of the present invention, are more efficaceus that either component alone, as will be further explained below with reference to the clinical trials.

Consumer clinical trials have been carried out with kit **10** of the present invention to apply a dose of soft solid type antiperspirant composition **12**. These tests were a paired comparison with a regular applicator and demonstrated a significant increase in sweat reduction versus the regular application.

EXAMPLE 2

An example of anti-perspirant composition **12** suitable for use in the present invention is shown in Table II.

TABLE II

Raw Material	**Weight %**
Cyclopentasiloxane	43.98
C30 - C45 Alkyl Dimethicone	6.00
Hydrogenated Castor Oil	6.00
Dimethicone	10.00
Talc	8.00
Aluminum Zirconium Trichlorohydrex GLY	25.50
Fragrance	0.50
Antioxidant	0.02

EXAMPLE 3

This example summarizes the results of a 5-day Antiperspirant Efficacy Study (Hotroom Test). The study was performed to investigate how varying the method of product application of delivering antiperspirant to the axilla will affect efficacy. Two product application techniques were compared: applying antiperspirant composition **12** using massage applicator apparatus **14** versus applying antiperspirant composition **12** via its standard pack. The soft solid antiperspirant composition **12** of EXAMPLE 2 was tested using an art-recognized gravimetric procedure.

The differences between the two product application techniques are shown in the Table III below.

TABLE III

% DIFFERENCE

Sample Comparisons		**Appl 2 1 hour**	**Appl 3 1 hour**	**Appl 4 24 hour**
A-test) Product Application using a Massager (low speed)	**% Difference**	12%	6.6%	10%
	Lower 95% CL	1.9%	-2.3%	0.81%
	Upper 95% CL	21%	15%	19%
B-control) Product Application using				
Standard Tap-38 soft Solid pack	**p-value**	0.02	0.13	0.04

These results indicate that product application technique using massage apparatus **14** was significantly better ($p < 0.05$) at post treatment sweat collections 1-hour after the second product application and 24-hours after the fourth product application. The results show a synergy between massage apparatus **14** and composition **12**.

EXAMPLE 4

This study is a follow-up of the massage applicator apparatus **14** study of Example 1. The objective of this test was to determine how quickly the massage apparatus **14** application enhances efficacy by adding sweat collection 1-hour after the first product application.

This example summarizes the results of a 4-day Antiperspirant Efficacy Study (Hotroom Test). Two product application techniques were compared: applying antiperspirant composition **12** using massage apparatus **14** versus applying antiperspirant composition **12** via its standard pack. The soft solid antiperspirant composition of Example 2 was tested for sweat reduction using an art-recognized gravimetric procedure.

The differences between the two product application techniques are shown in the Table IV below.

TABLE IV

% DIFFERENCE

Sample Comparisons		**Appl 1 1 hour**	**Appl 2 1 hour**	**Appl 3 1 hour**
A-test) Product Application using a Massager (low speed)	**% Difference**	6.6%	4.7%	7.5%
	Lower 95% CL	-0.27%	-3.0%	2.0%
	Upper 95% CL	13%	12%	13%
B-control) Product Application using				
Standard Tap-38 soft solid pack	**p-value**	0.058	0.21	0.01

These results indicate that product application technique using massage apparatus **14** was significantly better ($p \leq 0.10$) at post treatment sweat collection 1-hour after the first product application. Although the p-value was a little bit greater than 0.05 (p=0.058), this result provides some indication that efficacy is quickly enhanced after one product application.

It should also be noted that kit **10** apparatus and method of the present invention imparted good sensory properties to the user, providing a novel sensorial experience to the antiperspirant/deodorant application process, which was particularly pleasant for the user. For example, the kit **10** apparatus and method of the present invention provided superior feel upon application and minimized the whitening effects of antiperspirant/deodorant compositions **12**.

While the present invention has been described herein with some specificity, and with reference to certain preferred embodiments thereof, those of ordinary skill in the art will recognize numerous variations, modifications and substitutions of that which has been described which can be made, and which are within the scope and spirit of the invention. It is intended that all of these modifications and variations be within the scope of the present invention as described and claimed herein, and that the inventions be limited only by the scope of the claims which follow, and that such claims be interpreted as broadly as is reasonable. Throughout this

application, various publications have been cited. The entireties of each of these publications are hereby incorporated by reference herein.